WHAT IS CLAIMED IS:

1. A composition comprising a peptide that binds to six or more different members of a panel of HLA-DR molecules, wherein the peptide comprises at least about nine amino acids, said peptide having the formula Z_n-$X_1X_2X_3X_4X_5X_6X_7X_8X_9$-$Z_c$, wherein:

X_1 is an amino acid selected from the group consisting of: (X), Y, F, M, L, I, V, and W, wherein (X) is cyclohexylalanine;

X_2 is an amino acid selected from the group consisting of: I and V;

X_3, X_4, X_5, X_7, X_8, and X_9 are each an amino acid;

X_6 is an amino acid selected from the group consisting of: T, V, M, S, A, C, P, L, and I;

Z_n and Z_c each comprise 1 to about 15 amino acids.

2. The composition of claim **1**, wherein either or both of Z_n and Z_c comprise at least one D-amino acid.

3. The composition of claim **1**, wherein Z_n comprises K or A adjacent to X_1; X_1 is (X), Y or F; and X_2 is I or V.

4. The composition of claim **1**, wherein the peptide inhibits activation of a T cell which displays a receptor which is specific for a DR molecule and X_5 is a non-polar, non-charged, non-bulky, non-aromatic amino acid.

5. The composition of claim **4**, wherein X_5 is A.

6. The composition of claim **4**, wherein one or more of X_3, X_4, X_7, X_8, and X_9 is a non-polar, non-charged, non-bulky, non-aromatic amino acid.

7. The composition of claim **6**, wherein Z_n comprises at least one non-polar, non-charged, non-bulky, non-aromatic amino acid.

8. The composition of claim **6**, wherein one or more of X_3, X_4, X_7, X_8, and X_9 is A.

9. The composition of claim **1**, wherein the peptide stimulates activation of a T cell which displays a receptor specific for a DR molecule and wherein X_5 is a polar, charged, bulky, or aromatic amino acid.

10. The composition of claim **9**, wherein X_5 is W.

11. The composition of claim **9**, wherein one or more of X_3, X_4, X_7, X_8, and X_9 is a polar, charged, bulky, or aromatic amino acid.

12. The composition of claim **11**, wherein one or more of X_3, X_4, X_7, X_8, and X_9 is W.

13. A composition comprising a peptide that binds to six or more different members of a panel of HLA-DR molecules, wherein the peptide comprises at least about nine amino acids, said peptide having the formula Z_n- $X_0X_1X_2X_3X_4X_5X_6X_7X_8X_9$-$Z_c$, wherein:

X_0 is an amino acid selected from the group consisting of: K and A;

X_1 is an amino acid selected from the group consisting of: (X), Y and F;

X_2 is an amino acid selected from the group consisting of: I and V;

X_3, X_4, X_5, X_7, X_8, and X_9 are each an amino acid;

X_6 is T;

Z_n and Z_c each comprise 1 to about 15 amino acids.

14. The composition of claim **13**, wherein either or both of Z_n and Z_c comprise at least one D-amino acid.

15. The composition of claim **13**, wherein the peptide inhibits activation of a T cell which displays a receptor specific for a DR molecule and wherein X_5 is a non-polar, non-charged, non-bulky, non-aromatic amino acid.

16. The composition of claim **15**, wherein X_5 is A.

17. The composition of claim **15**, wherein one or more of X_3, X_4, X_7, X_8 and X_9 is a non-polar, non-charged, non-bulky, non-aromatic amino acid.

18. The composition of claim **15**, wherein either or both of Z_n and Z_c comprises at least one non-polar, non-charged, non-bulky, non-aromatic amino acid.

19. The composition of claim **13**, wherein the peptide stimulates activation of a T cell which displays a receptor specific for a DR molecule and wherein X_5 is a polar, charged, bulky, or aromatic amino acid.

20. The composition of claim **19**, wherein X_5 is W.

21. The composition of claim **19**, wherein one or more of X_3, X_4, X_7, X_8, and X_9 is a polar, charged, bulky, or aromatic amino acid.

22. The composition of claim **21**, wherein one or more of X_3, X_4, X_7, X_8, and X_9 is W or K.

23. The composition of claim **22**, wherein one or more of X_7 and X_8 is K.

24. The composition of claim **1**, wherein the panel of HLA-DR molecules comprises at least six members selected from the group consisting of DR1, DR2w2b, DR2w2a, DR3, DR4w4, DR4w14, DR5, DR6, DR7, DR8, DR9, DR52a, DR52b, DR52c and DR53.

25. The composition of claim **1**, wherein the peptide is a pan-DR peptide that binds to at least about seven members of the panel with high affinity.

26. The composition of claim **1**, wherein the composition comprises a pharmaceutically acceptable carrier.

27. The composition of claim **1**, which further comprises a CTL inducing peptide.

28. The composition of claim **27**, wherein the CTL inducing peptide is acetylated, palmitylated, or acylated with a fatty acid.

29. The composition of claim **27**, wherein the CTL inducing peptide is linked to the peptide to form a CTL/T helper peptide conjugate.

30. The composition of claim **29**, wherein the CTL/T helper peptide conjugate is linked to a carrier.

31. The composition of claim **29**, wherein the CTL inducing peptide is linked to the peptide by a spacer molecule.

32. The composition of claim **1**, wherein the peptide is a naturally occurring peptide that arises upon processing of a protein by an antigen-presenting cell.

33. The composition of claim **32**, wherein the peptide is a human peptide.

34. The composition of claim **1**, wherein the peptide is linked to one or more carbohydrate epitopes and the composition can induce an immune response to an antigenic carbohydrate.

35. The composition of claim **34**, wherein the carbohydrate epitope comprises an antigenic determinant from a bacterium, a virus, a cancer cell, a fungus, or a parasite.

36. The composition of claim **34**, wherein the carbohydrate epitope is linked to the carboxy-terminus of the peptide.

37. The composition of claim **34**, wherein the carbohydrate epitope is covalently linked to the PADRE peptide through a linker.

38. The composition of claim **37**, wherein the linker comprises a cysteine residue.

39. The composition of claim **37**, wherein the linker consists of an aminocaproic acid residue and a cysteine residue.

40. The composition of claim **34**, wherein the peptide is further linked to a surface-active material.

41. The composition of claim **40**, wherein the surface-active material is a lipid moiety, a polymer, polyalkylene glycol, or a surfactant.

42. The composition of claim **40**, wherein the surface-active material is linked to the N-terminus of the PADRE peptide.

43. The composition of claim **40**, wherein the surface-active material comprises palmitic acid.

44. The composition of claim **43**, wherein the surface-active material is a lipid moiety which is PAM_2K, wherein K is a lysine residue and PAM is a palmitic acid residue.

45. A peptide that binds to seven or more members of a panel of HLA-DR molecules, the peptide comprising a neutral amino acid at each position that is not a critical contact site, which critical contact sites are necessary for binding of the antigen to a selected HLA-DR molecule.

46. A method for identifying a pan-DR peptide, the method comprising analyzing one or more peptide sequences for a peptide that has the formula Z_n-$X_1X_2X_3X_4X_5X_6X_7X_8X_9$-$Z_c$, wherein:

X_1 is an amino acid selected from the group consisting of: (X), Y, F, M, L, I, V, and W, wherein (X) is cyclohexylalanine;

X_2 is an amino acid selected from the group consisting of: I and V;

X_3, X_4, X_5, X_7, X_8, and X_9 are each an amino acid;

X_6 is an amino acid selected from the group consisting of: T, V, M, S, A, C, P, L, and I;

Z_n and Z_c each comprise 1 to about 15 amino acids; and

selecting a peptide or peptides that have such formula.

47. The method of claim **46**, further comprising the step of testing the selected peptide or peptides for binding to three different members of a panel of HLA-DR molecules that comprises at least three members selected from the group consisting of DR1, DR2w2b, DR2w2a, DR3, DR4w4, DR4w14, DR5, DR6, DR7, DR8, DR9, DR52a, DR52b, DR52c, and DR53.

48. The method of claim **46**, wherein the selected peptide is a naturally occurring peptide.

49. The method of claim **46**, wherein the peptides are tested for binding to sequential panels of HLA-DR molecules.

50. The method of claim **49**, wherein the sequential panel comprises a primary panel which comprises DR1, DR4w4 and DR7 HLA molecules.

51. The method of claim **50**, wherein peptides that bind to at least two members of the primary panel are tested for binding to members of a secondary panel which comprises DR2w2β1, DR2w2β2, DR6w19 and DR9 HLA molecules.

52. The method of claim **51**, wherein peptides that bind to at least three members of the secondary panel are tested for binding to members of a tertiary panel which comprises DR4w15, DR5w11 and DR8w2 HLA molecules.

53. A method for rational design of a peptide that binds to three or more different members of a panel of HLA-DR molecules, which peptide has the formula Z_n-$X_1X_2X_3X_4X_5X_6X_7X_8X_9$-$Z_c$, the method comprising:

introducing at position X_1 an amino acid selected from the group consisting of (X), Y, F, M, L, I, V, and W, wherein (X) is cyclohexylalanine;

introducing at position X_2 an amino acid selected from the group consisting of I and V; and

introducing at position X_6 an amino acid selected from the group consisting of T, V, M, S, A, C, P, L, and I;

wherein X_3, X_4, X_5, X_7, X_8, and X_9 are each an amino acid; and

Z_n and Z_c each comprise 1 to about 15 amino acids.

54. The method of claim **53**, wherein the method further comprises testing the peptide to identify those that bind with high to intermediate affinity to three or more different members of a panel of HLA-DR molecules.

55. The method of claim **53**, wherein the panel of HLA-DR molecules comprises at least three members selected from the group consisting of DR1, DR2w2b, DR2w2a, DR3, DR4w4, DR4w14, DR5, DR6, DR7, DR8, DR9, DR52a, DR52b, DR52c, and DR53.

56. The method of claim **53**, wherein the peptide is a pan-DR peptide that binds to at least about three members of the panel with high affinity.

57. The method of claim **56**, wherein the pan-DR peptide binds to at least about three members of the panel with an IC_{50} of about 500 nM or less relative to the IC_{50} of a reference peptide.

58. The method of claim **53**, wherein the method further comprises rationally designing the peptide to inhibit DR-restricted T cell proliferation by replacing one or more amino acids at positions X_3, X_4, X_5, X_7, X_8, and X_9 with a non-polar, non-charged, non-aromatic, non-bulky amino acid.

59. The method of claim **58**, wherein the non-polar, non-charged, non-aromatic, non-bulky amino acid is selected from the group consisting of Ala, Gly, and Pro.

60. The method of claim **59**, wherein the non-polar, non-charged, non-aromatic, non-bulky amino acid is Ala.

61. The method of claim **58**, wherein each amino acid at positions X_3, X_4, X_5, X_7, X_8, and X_9 is replaced with a non-polar, non-charged, non-aromatic, non-bulky amino acid.

62. The method of claim **58**, wherein the method further comprises:

identifying those test peptides that retain their ability to bind with high to intermediate affinity to greater than 50% of members of a panel of HLA-DR molecules; and

testing the peptides that retain HLA-DR binding ability to identify those that can inhibit DR-restricted T cell proliferation.

63. The method of claim **62**, wherein the testing of the peptides to identify those that can inhibit DR-restricted T cell proliferation is conducted in an *in vitro* assay system or in an *in vivo* system.

64. A peptide that binds to greater than 50% of members of a panel of HLA-DR molecules, wherein the peptide is identified using the method of claim **53**.

65. The method of claim **53**, wherein the method further comprises rationally designing the peptide to induce an immune response by including at one or more of positions X_3, X_4, X_5, X_7, X_8, and X_9 a polar, charged, aromatic, or bulky amino acid.

66. The method of claim **65**, wherein the polar, charged, aromatic or bulky amino acid is selected from the group consisting of W, K, and (X).

67. The method of claim **65**, wherein positions X_7 and X_8 are each independently selected from the group consisting of W and K.

68. The method of claim **65**, wherein the method further comprises:

identifying those test peptides that retain their ability to bind with high to intermediate affinity to greater than 50% of members of a panel of HLA-DR molecules; and

testing the pan-DR peptides that retain HLA-DR binding ability to identify those that can induce an immune response.

69. The method of claim **68**, wherein the amino acid is selected from the group consisting of cyclohexylalanine, tryptophan, and lysine.

70. The method of claim **68**, wherein the immune response is a humoral response or a cytotoxic response.

71. The method of claim **68**, wherein the peptides are tested *in vivo*.

72. A peptide that comprises a pan-DR T helper epitope that binds to three or more different members of a panel of HLA-DR molecules, wherein the peptide is obtained using the method of claim **68**.

73. A method of inhibiting antigen-specific activation of T cells, the method comprising contacting a composition that comprises antigen presenting cells and the T cells with a peptide that binds to three or more different members of a panel of HLA-DR molecules, wherein:

the antigen presenting cells display a member of the panel of HLA-DR molecules and the T cells are of the DR MHC restriction; and

at least one amino acid residue in the peptide which is not a critical contact site for binding to the HLA-DR molecule but is involved in binding to a T cell receptor is substituted with a neutral amino acid.

74. The method of claim **73**, wherein the method comprises administering to a patient a therapeutically effective dose of a pharmaceutical composition that comprises the peptide and a pharmaceutically acceptable carrier.

75. A method of inducing antigen-specific activation of T cells, the method comprising contacting a composition that comprises antigen presenting cells and the T cells with a peptide that binds to three or more members of a panel of HLA-DR molecules, wherein the antigen presenting cells display a member of the panel of HLA-DR molecules and the T cells are of the DR MHC restriction, and further wherein the peptide has at least one characteristic selected from the group consisting of:

at least one amino acid which does not constitute a critical contact site in a pan-DR peptide from which the peptide is derived is substituted with an amino acid having a side chain that has one or more properties selected from the group consisting of increased bulk, hydrophobicity, aromaticity and charge compared to the substituted amino acid;

the peptide is conjugated to a CTL-inducing antigenic determinant; and

the peptide is conjugated to a humoral response-inducing antigenic determinant.

76. The method of claim 75, wherein the CTL-inducing antigenic determinant or the humoral response-inducing antigenic determinant comprises a carbohydrate epitope.

77. An isolated nucleic acid molecule that encodes a peptide of claim **1**.